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Project

Performance Evaluation of Mutual Fund Industry in Pakistan

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Abstract:

This study examines the performance evaluation of mutual funds in Pakistan. The performance of these funds is important for the investment decision of Pakistani investor's, as the investors in Pakistan is not much experienced and do not have that much access to the information in Pakistan. So this study will give them much broader idea of where to invest there precious money. This study focused on the secondary source data from 2017 to 2021. This study show how the two groups of mutual fund performs individually or according to the market. The analysis focuses on ten mutual fund from two different categories (equity market mutual funds and money market mutual funds). For our analysis we use composite performance analysis in which we uses various performance metrics, including the Sharpe ratio, Treynor's ratio, Sortino ratio, Information ratio, R-Square, and Jensen alpha, are used to assess the performance of these funds. The month-end values of (NAV) are considered, with the 3-Month T-Bills Rate used as the Risk-Free Rate , and the KSE 100 Index serves as the benchmark. The results in this study suggest that equity market mutual funds generally outperform money market mutual funds across multiple performance metrics. They exhibit higher Sharpe Ratios, showing better risk-adjusted returns, and higher Treynor's Ratios, suggesting superior risk-adjusted returns relative to systematic risk. Furthermore, equities market mutual funds have better downside risk management, and a stronger connection with market movements, as evidenced by higher R-Square values. The findings of this study, equity market mutual funds have the potential to deliver better returns for a given level of risk and offer a more favourable risk-return profile, especially during market downturns, effective downside risk management, and a stronger correlation with market movements. These findings give significant information for mutual fund investors in Pakistan, allowing them to make more educated investing decisions.

Introduction:

Background:

Mutual funds have been a favored and diverse option for investment vehicle in Pakistan for several decades. Securities and Exchange Commission of Pakistan (SECP) is the key regulatory agency which monitors the country's mutual fund business. Over time, In Pakistan, the evaluation of mutual funds has grown, incorporating various performance metrics and rating systems.

Initially, when MFs initially introduced mutual funds in Pakistan were evaluated based on their NAV is computed by dividing the entire value of the fund's assets by the no. of outstanding units. While this gave a fundamental assess of a fund's performance, it did not provide a complete whole of a picture, it failed to consider crucial factors such as risk and volatility. In the early 2000s, The SECP established a fund rating system that provided a rating to each mutual fund based on its performance in comparison to its peers. This rating system took into account factors such as risk-adjusted returns, volatility, and fund management. The intention was to provide investors with a more comprehensive measure of a fund's performance and assist them in making more informed investment decisions.

In 2015, the SECP introduced the Risk-Adjusted Performance Evaluation (RAPE) system as a new performance evaluation system for mutual funds in Pakistan. This methodology evaluates mutual fund performance using a variety of performance criteria that include various metrics that are risk-adjusted returns, volatility, and downside risk. The RAPE system aims to provide a more accurate measure of a fund's performance, taking into account both returns and risk. In addition to these performance evaluation systems, mutual funds in Pakistan are also subject to regular audits and

inspections by the SECP. These measures ensure compliance with regulatory requirements and help identify any potential risks to investors in the country.

Mutual funds in Pakistan encompass both conventional and Islamic options. Islamic mutual funds operate in accordance with Shariah rules, whereas conventional mutual funds follow a standard investing plan which is far different from others. To safeguard the interests of investors and promote accountability and transparency, the SECP has established rules and guidelines. It is essential for investors to thoroughly read the prospectus that they issue and seek expert advice before investing in any mutual fund in Pakistan.

Money market mutual funds (MMMFs) were introduced in Pakistan in 1991 as a new type of investment option for investors. The SECP regulates and oversees this fund industry in Pakistan. MMMFs are a form of MFs that invests in short-term, low-risk debt instruments such as government securities, treasury bills, commercial papers, and CDs. These funds aim to provide a stable source of income to investors while maintaining the safety of their principal investments. Asset management companies (AMCs), registered with the SECP, primarily manage MMMFs on behalf of investors and charge fees for their services. The growth of MMMFs in Pakistan has been steady, with the total assets under management (AUM) of the industry increasing significantly. This growth can be attributed to factors such as increasing investor awareness, the availability of online investment platforms, and a favourable regulatory environment. MMMFs have become an important investment option for investors in Pakistan, providing a safe and stable source of income while maintaining liquidity and low-risk exposure.

In Pakistan, equity mutual funds are one of the popular forms of mutual funds which quite noticing. These funds invest in the equity or stock market, and their returns are related to market performance and depend on it. Equity mutual funds provide an easy and diverse alternative for people of Pakistan to invest in the stock market without requiring substantial knowledge or experience. The SECP regulates equity mutual funds, setting guidelines for their management and operation, including investment limits, disclosure requirements, and reporting standards which is in favour of the investors.

There are various and diverse equity mutual funds available in Pakistan, each with different investment strategies and risk profiles. Some funds focus on large-cap stocks, while others may target smaller companies or specific sectors in Pakistan. Specialised equity mutual funds may focus on particular industries or themes, such as technology or renewable energy and some others. Investors can purchase units in equity mutual funds through brokers or directly from the fund manager. An equity mutual fund's unit price is defined by its (NAV). While equities mutual funds are risky, their returns might fluctuate in response to fluctuations in the stock market. However, by diversifying their portfolio across a range of companies and sectors, equity mutual funds can help reduce the overall risk associated with stock market investments.

Mutual funds in Pakistan face certain challenges, including regulatory hurdles, limited investor awareness, market volatility, and a lack of investment opportunities, trust, as well as the risks of mismanagement and fraud. For overcoming these challenges we requires regulatory reforms in Pakistan, increased investor education which is quite necessary, and the establishment of trust among investors in the market. By resolving these concerns, the Pakistani mutual fund sector may continue to develop and provide investors with the chance to participate in a broad portfolio of stocks, bonds, and other assets which is much helpful. Diversification, expert management, liquidity, access to foreign markets, and tax advantages are all advantages of mutual funds.

Problem statement:

People in Pakistan lack understanding and awareness regarding the performance of various types of mutual funds, such as money market mutual funds, equity funds, and others. There are also some challenges and opportunities in mutual funds. Due to this they face difficulty in investing. Many people don't even know about different categories of mutual funds. Due to lack of awareness they are unable to differentiate between money market mutual funds and equity market mutual funds.This study will help them to identify the best performing fund.

Literature Review:

Dr. Attahullah S, Nadia I, and Amin (2014), Compare the performance of Islamic mutual funds in Pakistan in terms of risk and return under severe economic conditions to that of conventional funds. The study evaluated the performance of both types of funds using classic risk-adjusted performance indicators such as the Sharpe ratio, Treynor ratio, and Jensen alpha. According to the study's findings, the distinctive attribute of Islamic funds outperforming conventional funds during economic downturns also holds true in Pakistan's economy. This was discovered by comparing the performance of conventional and Islamic mutual funds during the 2008-09 global financial crisis.

The study found that Islamic MFs outperformed conventional funds in terms of risk-adjusted returns during the global financial crisis. The Sharpe ratio, Treynor ratio, and Jensen alpha of Islamic funds were found to be higher than those of conventional funds. This suggests that Islamic funds were able to manage risk better and generate higher returns during the economic downturn.

Muhammad Usman, Kashif K, Sohail Ahmad (2020), investigate the most suitable mutual fund performance metric for investment in Pakistan, and investigate the relation between risk metrics and mutual fund return parameters.

To examine the performance of mutual funds in Pakistan, the study employed three classic performance metrics: the Sharpe ratio, the Treynor ratio, and the Jensen alpha. These measures were compared to the Sortino ratio, a novel performance statistic developed to analyse the performance of assets that face downside risk.

The findings of the study indicated that the Sortino ratio is the most suitable performance metric for investment in Pakistan because it considers the downside risk of investments, which is particularly important in the context of Pakistan's volatile market conditions.

Additionally, the study found a constructive connection between risk measures plus return parameters for mutual funds in Pakistan. This implies that higher levels of risk correspond to larger potential profits. The study did, however, discover that the link between risk and return is not linear, and that there is a point beyond which more risk does not result in higher profits.

Maroof L, Javid A and Mian R, (2019), The study of the link between stock market movements and MF performance. According to the report, mutual fund managers cannot disregard stock market swings or changes., as they have a significant impact on the returns that investors expect. Mutual fund managers invest in a range of stocks to diversify their portfolio and manage risk.

However, the stock market is volatile, and market movements can have a major influence on mutual fund performance. In this context, The study examined the connection between stock market fluctuations and mutual fund performance.

The study discovered that when the stock market swings in one direction, mutual funds tend to follow suit. This implies that mutual fund managers cannot disregard stock market movements since they have a direct influence on the returns that investors expect. The study emphasises the relevance of evaluating the association between stock market movements and mutual fund performance when making investing decisions. Mutual fund managers must be diligent and regularly watch the stock market in order to make educated investment decisions that account for the impact of market volatility on fund performance.

Maroof L,Javid A, Badshah (2017), A smart manager outperforms the market in both sub-periods on a consistent basis. This study initially computes the outer performance, selectivity, market timing, and volatility timing skills using the Capital Asset Pricing Model. Lubna , Attiya, and Imtiaz conducted a research in 2017 to evaluate mutual fund managers' performance utilising the (CAPM)). According to the study, a talented mutual fund manager is one that regularly beats the market in both sub-periods, and the study employed multiple performance criteria to gauge fund managers' skill level. CAPM was utilised in the study to measure mutual fund managers' talents in market timing, volatility timing, selectivity, and outside performance.

The outer performance of a fund is the return produced by the fund management as a result of market movements, whereas selectivity evaluates the fund manager's ability to choose specific companies that beat the market. Market timing assesses the fund manager's ability to predict market changes, whereas volatility timing measures the fund manager's ability to predict market volatility changes. The study found that skilled mutual fund managers consistently outperformed the market in both sub-periods, indicating that they possess a high level of skill in selecting stocks and timing the market. Additionally, the study found that skilled fund managers were able to generate significant returns due to their market timing and volatility timing skills.

The study suggests that mutual fund managers need to possess a high level of skill in selecting stocks and timing the market to consistently outperform the market. The study also highlights the importance of using performance metrics such as outer Performance, selectivity, market timing, and volatile time are used to assess fund managers' skill level.

Razzaq N, Gul S, (2002), examine into 9 Islamic mutual funds run by various money managers in Pakistan. It assesses the returns and performance of these funds by employing models such as the Sharp Ratio, Trenyor Ratio, Jensen's Alpha, and Information Ratio. their growth over time. This study also looks into how investors have been attracted towards investing in Pakistani Islamic Mutual Funds industry due to its significant growth recently.explain.

The goal of 2012 was to assess the performance and growth of Islamic mutual funds in Pakistan. The study looked at nine Islamic mutual funds managed by various fund managers and utilised performance indicators including Sharpe ratio, Treynor ratio, Jensen's alpha, and information ratio to evaluate their performance over time. According to the report, Islamic mutual funds in Pakistan performed well and earned large profits for their investors. In terms of risk-adjusted returns, the study indicated that Islamic mutual funds outperformed conventional mutual funds, showing that they were a desirable investment alternative for risk-averse investors. Furthermore, the report emphasised the expansion of the Islamic mutual funds market in Pakistan. had attracted a significant number of investors. This growth was attributed to the increasing awareness of Islamic finance principles among investors, as well as the growing demand for Shariah-compliant investment options.

Zeeshan, Han, Rehman, **Saleem (2020),** Examine the performance of Pakistan's mutual fund business from 2006 to 2010, a time marked by both bullish and negative markets. According to a research, despite their poor performance in comparison to conventional funds, Islamic funds have demonstrated considerable growth. They did a research in 2020 to analyse the performance of Pakistan's mutual fund business from 2006 to 2010, a time marked by both bullish and negative markets. During this time span, the study examined the performance of both conventional and Islamic mutual funds. The analysis discovered that the mutual fund business in Pakistan performed poorly overall throughout this time period, with both conventional and Islamic mutual funds lagging the market.

Despite their poor performance when compared to conventional funds, Islamic funds showed considerable growth, according to the study. According to the survey, the rise of Islamic mutual funds is due to a number of factors, including the growing acceptance of Islamic finance concepts and the growing desire for Shariah-compliant investment solutions. The study also implies that the poor performance of Islamic mutual funds may be related to their restricted investment alternatives and lack of portfolio variety.

Arif , Mounas , Khurshid(2018), In Pakistan, analyse the risk-adjusted efficiency, timing, and selecting skills of conventional and Islamic mutual funds. It examines data from 90 open-ended funds from 2011 to 2019 to assess their selectivity and timing abilities using pricing models for assets such as CAPM (1966) and Fama French three-factor model (1993).

The study conducted by Muhammad Arif, Samim, and Muhammad Khurshid in 2018 aimed to investigate the risk-adjusted performance, timing, and selection abilities of conventional and Islamic mutual funds in Pakistan. The study analyzed the data of 90 open-ended funds from 2011-2019 to measure their selectivity and timing abilities using asset pricing models like CAPM (1966) and Fama French three factors (1993).

The research discovered that both conventional and Islamic mutual funds in Pakistan performed well in terms of risk-adjusted returns over the study period. However, the analysis discovered that Islamic mutual funds outperformed traditional mutual funds in terms of timing and selection. The Islamic mutual funds demonstrated stronger stock market timing abilities, suggesting their capacity to purchase and sell assets at the proper moment, as well as a greater ability to choose equities that would do well in the market.

The study also discovered that mutual fund size and age had a substantial influence on performance, with smaller and fresher funds outperforming bigger and older funds. Furthermore, the study discovered that the mutual funds' expenditure ratio had a negative influence on their performance, showing that lower expense ratios were connected with greater performance.

Amir. Qayum. Nasir (2011), The introduction of this paper explains the concept of a stock market and its components. It states that a stock exchange is an important component that shows changes in the economy. Stock markets are made up of buyers and sellers who meet in public areas called exchanges to trade securities, bonds, or derivatives.

The paper authored by Muhammad Amir, Arsalan, and Adil in 2011 introduces the concept of a stock market and its components.. The paper also notes that the stock market is a reflection of changes in the economy, as investors buy and sell securities based on their assessment of the overall economic situation.

The paper explains that a exchange market is made up of buyers and sellers who get together to trade assets at exchanges. The exchanges are usually held in public venues where buyers and sellers may meet and do business. According to the study, the stock market is an important instrument for corporations to raise funds. as they can issue securities and sell them to investors through the stock

market. The stock market also provides a means for investors to invest their savings and earn a return on their investments.

The paper further explains that the stock market is subject to various external and internal factors that can influence its performance. External factors include changes in the global economy, geopolitical events, and changes in government policies, while internal factors include changes in the financial performance of enterprises listed on the stock exchange, as well as changes in investor mood, are both monitored.

Moeen Cheema, Sikandar Shah (2006), This article examines at the increasing popularity of mutual funds as an investment vehicle in developing economies, such as Pakistan. It also examines how recent regulations by the (SECP) have impacted their ability to promote better corporate governance.

Moeen Cheema and Sikandar Shah wrote a study in 2006 about the rising popularity of mutual funds as an investment vehicle in developing economies, notably in Pakistan. According to the study, mutual funds have become an appealing investment choice for investors looking for portfolio diversity and competent management.

The paper also examines the impact of recent regulations by the (SECP) on the mutual fund industry. They introduced a number of measures aimed at promoting better corporate governance in the industry, including requirements for independent directors on mutual fund boards and stricter disclosure requirements for mutual funds.

The paper argues that these regulations have had a positive impact on the mutual fund industry in Pakistan, improving investor confidence and encouraging more investment in mutual funds. The paper notes that mutual fund managers have responded positively to the new regulations, with many making efforts to improve their governance structures and transparency.

Muhammad Asad (2019), explore the many fund characteristics that impact mutual fund returns in Pakistan. Ten diverse types of mutual funds were chosen for the period 2015-17, and their returns were compared to six micro and two macro fund specific factors. The results revealed that risk and expense ratio had a positive influence on mutual fund returns, but size, age, and risk adjusted return had no effect or had a negative association. Macroeconomic factors (GDP and interest rates) also have an indirect influence on overall market performance, although it is difficult to analyse their direct association with individual fund performance owing to different managers' assumptions about market trends, etc.

Muhammad Asad's 2019 study sought to examine the numerous fund features that impact the performance of Pakistani mutual funds. They examined the returns of 10 different types of mutual funds from 2015 to 2017 in connection to six micro and two macro fund-specific factors.

The study found that some fund-specific variables, such as risk and expense ratio, had a positive effect on mutual fund returns. However, other variables, such as size, age, and risk-adjusted returns, had no impact or a negative relationship, respectively. The study also found that macroeconomic factors, such as GDP and interest rates, had an indirect effect on overall market performance, but it was difficult to analyze their direct correlation with individual funds' performances due to varying expectations by different managers regarding market trends.

Khan, Naseeb, Shah (2019), This abstract states that MFs, managed by Professional managers help modest investors to profit from the capital market with a minimal investment. It also states that the purpose of this research is to examine Performance-Chasing Behaviour and Mutual Funds in an Emerging Economy. Using models, the paper examines several types of open-end funds accessible in Pakistan and ratios based on daily NAV (Net Asset Value) data obtained for stocks as well as other investments.explain

Theis focuses on investigating the Performance-Chasing Behavior of MFs investors in Pakistan's developing economy. The study looks at different categories of open-end mutual funds in Pakistan and uses models and ratios based on daily Net Asset Value (NAV) data for stocks and other investments to evaluate their performance. The research aims to determine whether investors tend to invest in funds based on their past performance and whether this behavior leads to better or worse investment outcomes.

The study analyses the performance of the funds using multiple performance indicators like Sharpe ratio, Treynor ratio, Jensen's alpha, and Information ratio. The findings indicate that investors tend to chase past performance and select mutual funds based on their recent returns. However, the study finds that this behavior does not necessarily lead to better investment outcomes. The research concludes that mutual fund investors in Pakistan's emerging economy need to be more aware of the risks and benefits of different funds and make investment decisions based on careful analysis and evaluation of their investment goals and objectives.

Naveed, khurshid shah, Saqib (2020), The research investigates the link among corporate governance and mutual fund ratings in Islamic and conventional funds. The study investigates how various company governance criteria, such as the size of the board, independence of the board of directors and institutional shareholders, and overall governance performance, affect mutual fund ratings.

The study includes both forms of mutual funds in its analysis, and it discovers that these governance qualities have a beneficial influence on both Islamic and conventional mutual fund ratings. This suggests that while evaluating investment possibilities, mutual fund investors should evaluate the corporate governance practises of fund managers. In summary, this paper emphasises the significance of excellent corporate governance in the MF business, as well as its potential influence on fund performance.

Latief, Shah (2014), Mutual fund herding refers to the phenomenon where multiple mutual funds simultaneously invest in the same stocks, resulting in a concentration of ownership in those particular stocks. The influence of this behaviour on stock returns in Pakistan is investigated in this research. According to the study, MF herding has a considerable and beneficial impact on stock returns, demonstrating that MF herding behaviour might have a major influence on the overall performance of the stock market. This may also result in increased volatility and higher dangers for investors. Therefore, it is important for mutual fund managers to be alert of and manage the risks related with herding behavior in order to ensure optimal returns for their clients.

Arsalan Qayyum, Adeel Nasir (2011), The paper aims to investigate the connection between closed-ended mutual funds and the stock market progress in Pakistan. The study uses quarterly data from 2001 to 2008 to analyze the impact of four variables, including the quantity of closed-ended MFs, the NAV of closed-ended mutual funds, the discount/premium of closed-ended mutual funds, and the turnover ratio of closed-ended mutual funds on the KSE-100 index.

To examine the influence of these factors on the KSE-100 index, the study applies multiple regression analysis. The findings indicate that all four variables have a considerable influence on Pakistan's stock market growth. The amount of closed-ended mutual funds and their net asset value have a positive influence on the KSE-100 index, whilst the discount/premium and turnover ratio of closed-ended mutual funds have a negative impact. According to the report, the expansion of Pakistan's closed-ended mutual fund business has a substantial influence on the total stock market growth.

Qadeer,Abdullah,Iqbal nadim (2012), The abstract of the paper you mentioned, titled "Investigating the Role of Emotional Intelligence in Leadership Effectiveness," does not provide any information

about the research findings or the content of the paper. Instead, it states that the authors will investigate any claims of infringement and take appropriate action if necessary.

This suggests that the purpose of the abstract is not to provide a summary of the research, but rather to address potential legal issues related to copyright infringement or plagiarism. In other words, the authors are stating their commitment to ensuring that their work is original and not in violation of any laws or ethical standards.

Therefore, if you want to know about the content or findings of the paper, you would need to read the full paper itself, rather than relying on the abstract alone.

Raza, Syed Ali and Raza, abassi(2011), The study "Performance of Socially Responsible Mutual Funds: An Empirical Study investigates the performance of socially responsible mutual funds.

The study is to look at the link between the yearly returns of socially responsible mutual funds and independent factors such as dividends and the market portfolio. The authors want to know whether socially responsible mutual funds, which invest in firms that fulfil particular ethical and social standards, outperform typical mutual funds.

To conduct their analysis, the authors collect data on the yearly returns, dividends, and market portfolio of socially accountable MFs and traditional MFs. They then use statistical methods to examine the relationship between these variables.

According to the findings of the article, socially responsible mutual funds do not outperform standard mutual funds in terms of yearly returns. Dividends and the market portfolio, according to the authors, have a major favourable influence on the yearly results of both types of mutual funds.

The research investigates the performance of socially responsible mutual funds and investigates the link between annual returns and independent factors such dividends and the market portfolio. According to the study, socially responsible mutual funds outperform traditional mutual funds in terms of annual returns, and dividends and the market portfolio have a favourable influence on returns for both types of funds.

Zeeshan, hal, Rahman, Saleem(2020), To perform their research, the authors gathered information on 90 open-ended funds, 45 from Islamic and 45 from conventional funds, chosen at random between 2011 and 2019. The authors compared the risk-adjusted performance of Islamic and conventional funds, also their timing and selection abilities, using several statistical methodologies.

To perform their research, the authors gathered information on 90 open-ended funds, 45 from Islamic and 45 from conventional funds, chosen at random between 2011 and 2019. The authors compared the risk-adjusted returns of Islamic and conventional funds, as well as their timing and selection abilities, using several statistical methodologies.

Nafees, Shah, and Saifullah (2011), The study analyses MFs performance in Pakistan using classic methods such as Sharpe, Sortino, Treynor, Jensen difference, and data measurements. These metrics are often used to assess mutual fund performance and compare it to benchmark indexes.

According to the study's findings, the mutual fund sector in Pakistan has performed poorly the market portfolio. This is demonstrated by investors' minus risk-adjusted returns, which indicate that they have not been sufficiently paid for the risks they have assumed by participating in mutual funds.

All measures of risk-adjusted return, they take into account the amount of risk taken on by the investor and adjust the return accordingly. A negative risk-adjusted return means that the investor has not been compensated for the amount of risk they have taken on.

Mahreen Mahmud, Nawazish Mirza(2011), The report assesses the performance of Pakistan's mutual fund business from 2006-10. The research analyses the performance of several fund types and if any fund has outperformed the market benchmark.

According to the research's findings, none of the funds outperformed the market throughout the study period. This shows that the Pakistani mutual fund sector was unable to generate market-beating returns to its clients during this time period.

Despite their poor performance when compared to conventional funds, Islamic funds demonstrated considerable growth, according to the study. This shows that there was a considerable demand for Islamic finance in Pakistan throughout the research period, potentially for religious and cultural reasons..

It is crucial to note that a number of factors, including the fund manager's expertise, investment selection, and market circumstances, can influence mutual fund performance. Furthermore, the performance of mutual funds can change over time, and previous performance does not guarantee future results.

Before investing, investors should thoroughly assess the performance and investment strategy of mutual funds, as well as their personal investment goals and risk tolerance.

Waqas Ahmad, Roomi, Dr Zia , Ramazan (2015), The article examines the performance of open-ended and closed-ended mutual funds in Pakistan, with an emphasis on income, balance, and equity schemes. The research examines and compares the performance of various funds over a certain time period.

According to the study's findings, open-ended mutual funds outperformed closed-ended mutual funds. Closed-ended mutual funds have a set number of units and are traded on stock exchanges, whereas open-ended mutual funds are meant to be flexible and allow investors to purchase and sell units at any time.

However, the analysis discovered that the majority of risk-adjusted returns for these mutual funds were negative, which might be attributed to the financial crisis that happened during the sample period. This shows that investors were undercompensated for the risks they assumed by participating in these mutual funds.

Methodology:

Research Design:

Sharpe ratios:

The Sharpe ratio, which is special to mutual funds, is a risk-adjusted performance statistic that evaluates a MF's return compared to the risk it carries. The Sharpe ratio for mutual funds considers both the fund's returns and the level of risk associated with such returns.

If we talk about mutual funds, the Sharpe ratio tells us how well the fund has done in terms of generating returns in comparison to the risk incurred. A greater Sharpe ratio indicates a better risk-adjusted return, which means the mutual fund earned more money for each unit of risk it took. A lower ratio, on the other hand, indicates a less favourable risk-adjusted return.

$SR = (Rp - Rf) / \sigma p$

Rf return in this formula is the return an investor may make from a risk-free investment, such as a Treasury bill or bond, while the σp returns represents the volatility or risk associated with those returns. A Sharpe ratio of one or greater is generally regarded as favourable, but a ratio of less than one suggests that the return was insufficient to compensate for the risk taken.

Treynor Ratio:

The Treynor ratio is a risk-adjusted performance metric for MFs that calculates the additional return generated by a mutual fund per unit of systemic risk. The ratio has been given a named after Jack L. Treynor, an economist and investment manager. The Treynor ratio considers the link between the fund's returns and its systematic risk, as measured by beta.

In mutual funds it evaluates the excess return of the fund in comparison to the systematic risk it bears. A higher Treynor ratio indicates a better risk-adjusted return, meaning that the mutual fund generated more returns per unit of systematic risk. A lower ratio, on the other hand, indicates a less favourable risk-adjusted return.

Treynor ratio is one of several tools used to evaluate mutual fund performance. Investors should Consider additional criteria such as the investing strategy of the fund., management team, expense ratio, and historical performance when making investment decisions.

The formula is;

$\text{Treynor Ratio} = (Rp - Rf) / \beta p$

The return on a risk-free investment, such as a government bond, is the risk-free rate. Beta measures the portfolio's volatility in respect to the overall market. Beta of one indicates that portfolio's returns track the market's, a beta greater than one indicates that the portfolio is more volatility than the market, and a beta lower one shows that the portfolio is less erratic than the market.

Sortino Ratio:

The Sortino ratio represents a risk-adjusted performance metric that relates the return of a MFs to its downside risk. This name is given after finance professor and researcher Frank A. Sortino. Itt is unlike other risk-adjusted ratios such as the Sharpe ratio, focuses on analysing the fund's performance in relation to its downside volatility.

In mutual funds evaluates it tells us how well the fund has performed in generating returns compared to its downside risk. It focuses specifically on the negative returns or downside volatility, as it considers that investors are more concerned about losses rather than overall volatility.

A higher the ratio indicates a more favorable risk-adjusted return, implying that the mutual fund has achieved higher returns relative to its downside risk. Conversely, a lower ratio suggests a less favorable risk-adjusted return.The Sortino ratio is calculated by dividing the difference between the asset's average return and the (MAR) by the asset's downside deviation.

Mathematically, it can be expressed as:

$$\text{Sortino Ratio} = \frac{\text{(Average Return – MAR)}}{\text{Downside Deviation}}$$

The MAR is typically set to the Rf or the investor's required rate of return. Downside deviation measures the volatility of returns below the MAR.

Jenson Alpha:

Jensen's Alpha is a risk-adjusted performance indicator for mutual funds that analyses the excess return delivered by a mutual fund relative to its projected return based on a benchmark index. The name has been given after economist and finance professor Michael C. Jensen. It aids in determining whether the mutual fund excelled or underperformed its projected returns after taking into account systemic risk. Jensen's Alpha quantifies the mutual fund's excess return beyond the return that may be attributable to systematic risk, as represented by the benchmark index.

If the Jensen's Alpha ratio is +ve, it specifies that the investment has beaten the market, while a -ve ratio indicates underperformance. A ratio of zero indicates that the investment has performed in line with the market. Overall, the Jensen's Alpha ratio is one of several measures that investors use to evaluate the performance of their investments, and it can be a useful tool in determining whether an investment has generated excess returns compared to the market.

Jensen's Alpha is derived by deducting an investment's or portfolio's projected rate of return., based on its beta, from the actual rate of return achieved. The result is then adjusted for risk and represented as a percentage.

Jensen A = Actual portfolio return - [Risk-free rate + Beta of portfolio x (Market return - Risk-free rate)]

Information Ratio:

The information ratio is a risk-adjusted performance statistic for a MFs or investment portfolio. It computes the ratio of the fund's excess return to its tracking error. The information ratio assists investors in determining the fund manager's capacity to create higher returns relative to the benchmark while taking into account the amount of risk taken.

The formula for this ratio is,

$$\text{Information Ratio} = \frac{\text{(Fund's excess return – Benchmark's Return)}}{\text{Tracking Error}}$$

Fund's Excess Return: This is the difference between the mutual fund's return and the return of a benchmark index or comparable market index. The excess return indicates how well the fund fared in comparison to the benchmark.

Benchmark's Return: This refers the return of the selected benchmark index, which typically represents the fund's investment style or asset class.

The tracking error is the volatility or σ of the difference in returns between the fund and the benchmark. It measures how closely the fund matches or duplicates the performance of the benchmark. A bigger divergence from the benchmark is indicated by a higher tracking error.

R Square:

R-squared is a statistical metric used in mutual fund performance to evaluate the extent to which a fund's performance can be ascribed to the movements of its benchmark index. It denotes the fraction of the fund's fluctuation that may be explained by the performance of the benchmark.

R-squared evaluates the degree of correlation between the returns of a mutual fund and the returns of its benchmark. It has a scale of 0 to 1, with 0 representing no connection and 1 representing perfect correlation. A high R-squared number indicates that the fund's performance closely resembles that of the benchmark, implying that changes in the benchmark's returns explain a substantial amount of the fund's returns. It is crucial to remember, however, that a high R-squared does not always suggest that a mutual fund is performing well. It simply means that the benchmark has a large effect on the fund's results.. A low R-squared value, on the other hand, suggests that the

fund's returns are less dependent on the benchmark and may be driven by other factors such as active management strategies or unique investment holdings.

Here we use R-squared as a tool to understand how closely a mutual fund tracks its benchmark and to assess the extent to which the fund's performance is attributable to the benchmark's movements. It provides insights into the fund's style and investment approach, helping investors determine if the fund aligns with their investment objectives and preferences.

Population and Sample:

We take ten (10) Equity Mutual Funds and ten (10) of Money Market Mutual Fund. Data ranges from 2017 -2021 (Five Years). The data we collected is real time data of Pakistan Mutual Fund Industry. All the data we collected is from secondary source.

Data collection:

The data is collected from State bank of Pakistan (SBP), Security And Exchange commission of Pakistan (SECP), mutual funds association of Pakistan (MUFAP), and Investorslaunge.com. All these sites help us to collect the desirable data that is much needed to calculate the ratios and from that we can reach to our results.

Table-1a

Money Market Mutual Funds Companies
1. NAFA Money Market Fund
2. Alfalah Ghp Money Market Fund
3. Atlas Money Market Fund
4. AWT Money Market Fund
5. JS Cash Fund
6. ABL Cash Fund
7. AKD Cash Fund
8. HBL Money Market Fund

9. UBL Money Market Fund
10. NIT-GTF (National Investment Trust – Government Treasury Fund)

Table-1b

Equity Market Mutual Funds
1. HBL Islamic Dedicated Equity Fund
2. UBL Dedicated Equity Fund
3. JS Islamic Dedicated Equity Fund
4. UBL Stock Advantage Fund
5. ABL Stock Fund
6. Alfalah Ghp Stock Fund
7. Atlas Islamic Stock Fund
8. MCB Pakistan Stock Market Fund
9. NIT Islamic Equity Fund
10. Al-Ameen Shariah Stock Fund

Data Analysis:

Money Market MF Individual Fund Analysis:

Here we analyse the performance of individual Equity Market MFs through the ratios, to understand the performance of a single fund after that we take average of these ratios for comparison between the two different categories.

Table-2a

	NAFA Money Market Fund

	Fund	Market
Sharpe	**-0.69**	**-0.13**
Treynor	**0.47**	**-0.01**
Jenson A	**-0.01**	**0**
Sortino	**-15.1**	**-0.13**
Info Ratio	**0**	
R Square	**0.01**	

The NAFA Money Market Fund has a negative Sharpe ratio of -0.69, indicating lower risk-adjusted returns compared to the market. The T Ratio of 0.47 suggests that the fund has a +ve excess return relative to its level of systematic risk. The Jenson A of -0.01 indicates that the fund's performance is slightly below the market. The Sortino ratio of -15.1 suggests that the fund has significantly higher downside risk compared to the market. The Information Ratio of (0) shows that the fund's performance is in accordance with its benchmark. Lastly, the R-Square of 0.01 suggests a minimal correlation between the movements of the fund and the market.

After all this analysis we access that the NAFA Money Market Fund exhibits lower risk-adjusted returns, positive excess return relative to its risk, slightly underperforms the market, significantly higher downside risk, is somewhat superior than its benchmark, and has a minimal correlation with the market movements.

Table-2b

	Alfalah Ghp Money Market Fund	
	Fund	**Market**
Sharpe	**-0.49**	**-0.13**
Treynor	**0.18**	**-0.01**
Jenson A	**-0.01**	**0**
Sortino	**-12.69**	**-0.13**
Info Ratio	**0.01**	

R Square	**0.03**	

The Alfalah GHP Money Market Fund has a negative Sharpe of -0.49, indicating that its risk-adjusted returns are lower than those of the market. The T ratio of 0.18 suggests that the fund has a +ve excess return relative to its systematic risk. The Jenson Alpha of -0.01 indicates that the fund's performance is slightly below the market. The Sortino ratio of -12.69 suggests that the fund has a significantly higher downside risk compared to the market. The Information Ratio of 0.01 shows that the fund's performance is somewhat superior than its benchmark. Finally, the R-Square of 0.03 suggests a weak correlation between the movements of the fund and the market.

After the analysis we can easily summarize that the Alfalah GHP Money Market Fund has lower risk-adjusted returns compared to the market. However, it provides a positive excess return relative to its risk. Its performance slightly underperforms the market, and it has a higher downside risk. The fund's performance is somewhat superior than its benchmark, and there is a weak correlation between the fund's movements and the market.

Table-2c

	Atlas Money Market Fund	
	Fund	**Market**
Sharpe	**-0.65**	**-0.13**
Treynor	**2.72**	**-0.01**
Jenson A	**-0.01**	**0**
Sortino	**-16.67**	**-0.13**
Info Ratio	**0.01**	
R Square	**0**	

The Atlas Money Market Fund has a negative Sharpe ratio of -0.65, indicating that its risk-adjusted returns are lower than those of the market. The T ratio of 2.72 suggests that the fund has a significantly greater excess return relative to its systematic risk. The Jenson A of -0.01 indicates that the fund's performance is in line with the market. Sortino ratio of -16.67 suggests that the fund has a significantly greater downside comparable to the market The Information Ratio of 0.01 indicates that the fund's performance is slightly better than its benchmark. Finally, the R-Square of 0 suggests no correlation between the movements of the fund and the market.

In other word or in easy words to give clear understanding we say that the Atlas Money Market Fund has lower risk-adjusted returns compared to the market. However, it provides a significantly higher excess return relative to its risk. Its performance is in line with the market, and it has a significantly higher downside risk. The fund's performance is somewhat superior than its benchmark, and there is no correlation between the fund's movements and the market.

Table-2d

	AWT Money Market Fund	
	Fund	**Market**
Sharpe	**-0.09**	**-0.13**
Treynor	**0.05**	**-0.01**
Jenson A	**-0.01**	**0**
Sortino	**-1.16**	**-0.1**
Info Ratio	**0.02**	
R Square	**0.02**	

The AWT Money Market Fund has a slightly negative Sharpe ratio of -0.09, indicating that its risk-adjusted returns are slightly lower than those of the market. T ratio of 0.05 suggests that the fund has a slightly higher excess return relative to its systematic risk. The Jenson Alpha of -0.01 shows that the fund's performance is in line with the market. The Sortino ratio of -1.16 suggests that the fund has a slightly higher downside risk in comparison to the market. The Information Ratio of 0.02 indicates that the fund's performance is slightly better than its benchmark. Finally, the R-Square of 0.02 suggests a weak correlation between the movements of the fund and the market.

In a nutshell, it is clear that the AWT Money Market Fund has slightly lower risk-adjusted returns compared to the market. However, it provides a slightly higher excess return relative to its risk. Its performance is in line with the market, and it has a marginally higher downside risk. The fund's performance is somewhat superior than its benchmark, and there is a weak correlation between the fund's movements and the market.

Table-2e

	JS Cash Fund	
	Fund	**Market**
Sharpe	**-0.35**	**-0.13**
Treynor	**0.24**	**-0.01**
Jenson A	**-0.01**	**0**

Sortino	**-9.36**	**-0.13**
Info Ratio	**0.03**	
R Square	**0.01**	

The JS Cash Fund has a negative Sharpe ratio of -0.35, indicating that its risk-adjusted returns are lower than those of the market. The Treynor ratio of 0.24 suggests that the fund has a greater excess return relative to its systematic risk. The Jenson Alpha of -0.01 indicates that the fund's performance is in line with the market. The Sortino ratio of -9.36 suggests that the fund has a higher downside risk in comparison to the market. The Information Ratio of 0.03 specifies that the fund's performance is slightly better than its benchmark. Finally, the R-Square of 0.01 suggests a weak correlation between the movements of the fund and the market.

Now it is clearly understood that the JS Cash Fund has lower risk-adjusted returns compared to the market. However, it provides a higher excess return relative to its risk. Its performance is in line with the market, but it has a higher downside risk. The fund's performance is is somewhat superior than its benchmark, and there is a weak correlation between the fund's movements and the market.

Table-2f

	ABL Cash Fund	
	Fund	**Market**
Sharpe	**-0.37**	**-0.13**
Treynor	**0.93**	**-0.01**
Jenson A	**-0.01**	**0**
Sortino	**-8.73**	**-0.12**
Info Ratio	**0**	
R Square	**0**	

The ABL Cash Fund has a negative Sharpe ratio of -0.37, indicating that its risk-adjusted returns are lower than those of the market. The Treynor ratio of 0.93 suggests that the fund has a significantly higher excess return relative to its systematic risk. The Jenson Alpha of -0.01 indicates that The fund's performance is comparable to the market. The Sortino ratio of -8.73 suggests that the fund has a greater downside risk compared to market. The Information Ratio of 0 shows that the fund's performance is in line with its benchmark. Finally, R-Square of 0 indicates no correlation between the movements of the fund and the market.

Now it is clearly understood that the ABL Cash Fund has lower risk-adjusted returns compared to the market. However, it provides a significantly higher excess return relative to its risk. Its performance is

in line with the market, but it has a higher downside risk. The fund's performance is consistent with its benchmark, and there is no correlation between the fund's movements and the market.

Table-2g

	AKD Cash Fund	
	Fund	**Market**
Sharpe Ratio	**-0.26**	**-0.13**
Treynor Ratio	**-0.08**	**-0.01**
Jenson Alpha	**-0.01**	**0**
Sortino Ratio	**-4.25**	**-0.11**
Info Ratio	**0.02**	
R Square	**0.04**	

The AKD Cash Fund has a negative Sharpe ratio of -0.26, indicating that its risk-adjusted returns are lower than the market. The T ratio of -0.08 suggests that the fund's excess return is lower than the systematic risk it assumes. The Jenson Alpha of -0.01 indicates that the fund's performance is comparable to the market. The Sortino ratio of -4.25 suggests that the fund has a higher downside risk compared to the market. The Information Ratio of 0.02 indicates that the fund's performance slightly exceeds its benchmark. Finally, the R-Square of 0.04 suggests a weak positive correlation between the movements of the fund and the market.

From this analysis we reach to say that the AKD Cash Fund has lower risk-adjusted returns compared to the market. It has a lower excess return relative to its risk and its performance aligns with the market. The fund exhibits higher downside risk compared to the market. It slightly outperforms its benchmark, indicating some level of skill in portfolio management. The fund's movements have a weak positive correlation with the market.

Table-2h

	HBL Money Market Fund	
	Fund	**Market**

Sharpe	**-0.22**	**-0.13**
Treynor	**0.3**	**-0.01**
Jenson A	**-0.01**	**0**
Sortino	**-3.4**	**-0.12**
Info Ratio	**0.02**	
R Square	**0**	

The HBL Money Market Fund has a negative Sharpe ratio of -0.22, indicating that its risk-adjusted returns are lower than those of the market. The T ratio of 0.3 suggests that the fund excess return is greater than systematic risk it assumes. The Jenson Alpha of -0.01 indicates that the fund's performance is comparable to the market. The Sortino ratio of -3.4 suggests that the fund has a higher downside risk in comparison to the market. The Information Ratio of 0.02 indicates that the fund's performance slightly exceeds its benchmark. Finally, the R-Square of 0 suggests no correlation between the movements of the fund and the market.

From this analysis we reach to say that the HBL Money Market Fund has lower risk-adjusted returns compared to the market. It has a higher excess return relative to its risk, indicating some level of outperformance. The fund's performance aligns with the market, and it exhibits higher downside risk compared to the market. It slightly outperforms its benchmark, indicating some level of skill in portfolio management. The fund's movements have no correlation with the market.

Table-2i

	UBL Money Market Fund	
	Fund	**Market**
Sharpe	**-0.26**	**-0.13**
Treynor	**0.13**	**-0.01**
Jenson A	**-0.01**	**0**
Sortino	**-4.28**	**-0.12**
Info Ratio	**0.02**	
R Square	**0.02**	

The UBL Money Market Fund has a negative Sharpe ratio of -0.26, indicating that its risk-adjusted returns are lower than those of the market. The Treynor ratio of 0.13 suggests that the fund excess return is higher than the systematic risk it assumes. The Jenson Alpha of -0.01 indicates that the fund's performance is comparable to the market. The Sortino ratio of -4.28 suggests that the fund has a higher downside risk compared to the market. The Information Ratio of 0.02 indicates that the

fund's performance slightly exceeds its benchmark. Finally, the R-Square of 0.02 suggests a weak correlation between the movements of the fund and the market.

From this analysis we reach to say that the UBL Money Market Fund has lower risk-adjusted returns compared to the market. It has a higher excess return relative to its risk, indicating some level of outperformance. The fund's performance aligns with the market, and it exhibits higher downside risk compared to the market. It slightly outperforms its benchmark, indicating some level of skill in portfolio management. The fund's movements show a weak correlation with the market.

Table-2j

	nit-gtf	
	Fund	**Market**
Sharpe	**-0.46**	**-0.13**
Treynor	**-0.3**	**-0.01**
Jenson A	**-0.01**	**0**
Sortino	**-10.74**	**-0.12**
Info Ratio	**-0.03**	
R Square	**0.01**	

The NIT-GTF (Government Treasury Fund) has a negative Sharpe ratio of -0.46, indicating that its risk-adjusted returns are lower than those of the market. The Treynor ratio of -0.3 suggests that the fund's excess return is lower than the systematic risk it assumes. Jenson Alpha of -0.01 indicates that the fund's performance is comparable to the market. The Sortino ratio of -10.74 suggests that the fund has a higher downside risk comparable to the market. The Information Ratio of -0.03 indicates that the fund's performance lags behind its benchmark. Finally, the R-Square of 0.01 suggests a weak correlation between the movements of the fund and the market.

From this analysis we reach to say that the NIT-GTF has lower risk-adjusted returns compared to the market. It has a lower excess return relative to its risk, indicating underperformance. The fund's performance aligns with the market, and it exhibits higher downside risk compared to the market. It lags behind its benchmark, indicating a lack of skill in portfolio management. The fund's movements show a weak correlation with the market.

Equity Market MF Individual Fund Analysis:

Here we analyse the performance of individual Equity Market MFs through the ratios, to understand the performance of a single fund after that we take average of these ratios for comparison between the two different catagories.

Table-3a

	ABL Stock Fund	
	Fund	**Market**
Sharpe	**-0.15**	**-0.13**
Trenor	**0.01**	**-0.01**
Jenson A	**0**	**0**
Sortino	**-1.11**	**-0.39**
Info Ratio	**-0.13**	
R Square	**0.94**	

The ABL Stock Fund has a negative Sharpe ratio of -0.15, indicating that it has a lower risk-adjusted return compared to the market. The T ratio of 0.01 suggests that fund has a slightly +ve excess return relative to its level of systematic risk. The Jenson Alpha of 0 indicates that the fund's performance is comparable to the market. The Sortino ratio of -1.11 highlights a higher downside risk for the fund compared to the market. The Information Ratio of -0.13 indicates that the fund has underperformed its benchmark. Lastly, the R-Square of 0.94 suggests that the movements in the market can explain 94% of the fund's movements.

The ABL Stock Fund has lower risk-adjusted returns, a slightly positive excess return, comparable performance to the market, higher downside risk, underperformance compared to its benchmark, and a strong correlation with the market.

Table-3b

	Alfalah Ghp Stock Fund	
	Fund	**Market**
Sharpe	**-0.2**	**-0.13**
Treynor	**0.01**	**-0.01**
Jenson A	**-0.01**	**0**
Sortino	**-1.46**	**-0.3**
Info Ratio	**-0.22**	
R Square	**0.85**	

The Alfalah Ghp Stock Fund has a negative Sharpe ratio of -0.2, indicating lower risk-adjusted returns compared to the market. The T ratio of 0.01 suggests that the fund has a slightly +ve excess return in

comparison to its degree of systemic risk. The Jenson Alpha of -0.01 indicates that the fund's performance is slightly below the market. The Sortino ratio of -1.46 highlights a higher downside risk for the fund compared to the market. The Information Ratio of -0.22 indicates that the fund has underperformed its benchmark. Lastly, the R-Square of 0.85 suggests that the movements in the market can explain 85% of the fund's movements.

If we say in easy words then the Alfalah Ghp Stock Fund has lower risk-adjusted returns, a slightly positive excess return, slightly underperforms the market, higher downside risk, underperforms its benchmark, and has a strong correlation with the market.

Table-3c

	Atlas Islamic Stock Fund	
	Fund	**Market**
Sharpe	**-0.13**	**-0.13**
Treynor	**0.01**	**-0.01**
Jenson A	**0**	**0**
Sortino	**-1.21**	**-0.43**
Info Ratio	**-0.05**	
R Square	**0.93**	

The Atlas Islamic Stock Fund has a negative Sharpe ratio of -0.13, indicating lower risk-adjusted returns compared to the market. The T ratio of 0.01 suggests that fund has a slightly +ive excess return relative to its level of systematic risk. The Jenson Alpha of 0 indicates that the fund's performance is comparable to the market. The Sortino ratio of -1.21 highlights a higher downside risk for the fund compared to the market. The Information Ratio of -0.05 indicates that the fund has underperformed its benchmark. Lastly, the R-Square of 0.93 suggests that the movements in the market can explain 93% of the fund's movements.

If we say in easy words then the Atlas Islamic Stock Fund has lower risk-adjusted returns, a slightly positive excess return, performs in line with the market, higher downside risk, underperforms its benchmark, and has a strong correlation with the market.

Table-3d

	MCB Pakistan Stock Market Fund	
	Fund	**Market**
Sharpe	**-0.17**	**-0.13**
Treynor	**0.03**	**-0.01**
Jenson A	**-0.01**	**0**
Sortino	**-1.72**	**-0.12**
Info Ratio	**-0.03**	
R Square	**0.13**	

The MCB Pakistan Stock Market Fund has a negative Sharpe ratio of -0.17, indicating lower risk-adjusted returns compared to the market. The T ratio of 0.03 suggests that the fund has a slightly +ive excess return relative to its level of systematic risk. The Jenson Alpha of -0.01 suggests that the fund's performance is slightly below the market. The Sortino ratio of -1.72 highlights a significantly higher downside risk for the fund compared to the market. The Information Ratio of -0.03 indicates that the fund has slightly underperformed its benchmark. Lastly, the R-Square of 0.13 suggests that the movements in the market can explain only 13% of the fund's movements.

If we say in easy words then the MCB Pakistan Stock Market Fund has lower risk-adjusted returns, a slightly positive excess return, slightly underperforms the market, significantly higher downside risk, slightly underperforms its benchmark, and has a weak correlation with the market.

Table-3e

	NIT Islamic Equity Fund	
	Fund	**Market**
Sharpe	**-0.24**	**-0.13**
Treynor	**0.04**	**-0.01**
Jenson A	**-0.01**	**0**
Sortino	**-2.19**	**-0.12**
Info Ratio	**-0.1**	

R Square	**0.2**	

The NIT Islamic Equity Fund has a negative Sharpe ratio of -0.24, indicating lower risk-adjusted returns compared to the market. The T ratio of 0.04 suggests that the fund has a +ve excess return relative to its level of systematic risk. The Jenson Alpha of -0.01 suggests that the fund's performance is slightly below the market. Sortino ratio of -2.19 highlights significantly higher downside risk for the fund compared to the market. The Information Ratio of -0.1 indicates that the fund has underperformed its benchmark. Lastly, the R-Square of 0.2 suggests that 20% of the fund's movement can be explained by the movement in the market.

If we say in easy words then the NIT Islamic Equity Fund has lower risk-adjusted returns, a positive excess return, slightly underperforms the market, significantly higher downside risk, underperforms its benchmark, and has a moderate correlation with the market.

Table-3f

	Al-Ameen Shariah Stock Fund	
	Fund	**Market**
Sharpe	**-0.14**	**-0.13**
Treynor	**0.02**	**-0.01**
Jenson A	**-0.01**	**0**
Sortino	**-1.5**	**-0.12**
Info Ratio	**-0.01**	
R Square	**0.16**	

The Al-Ameen Shariah Stock Fund has a slightly negative Sharpe ratio of -0.14, indicating lower risk-adjusted returns compared to the market. Treynor ratio of 0.02 suggests that the fund has a +ve excess return relative to its systematic risk. The Jenson Alpha of -0.01 indicates that the fund's performance is slightly below the market. The Sortino ratio of -1.5 points to higher downside risk for the fund compared to the market. The Information Ratio of -0.01 suggests that the fund has marginally underperformed its benchmark. Lastly, the R-Square of 0.16 indicates that the movements in the market can explain approximately 16% of the fund’s movements.

From this analysis it we get that the Al-Ameen Shariah Stock Fund exhibits slightly lower risk-adjusted returns, a positive excess return, slightly underperforms the market, higher downside risk, marginally underperforms its benchmark, and has a moderate correlation with the market.

Table-3g

	UBL Stock Advantage Fund	
	Fund	**Market**
Sharpe	**-0.06**	**-0.13**
Treynor	**0.05**	**-0.01**
Jenson A	**0**	**0**
Sortino	**-0.59**	**-0.09**
Info Ratio	**0.05**	
R Square	**0.01**	

The UBL Stock Advantage Fund has a slightly negative Sharpe ratio of -0.06, indicating lower risk-adjusted returns compared to the market. Treynor ratio of 0.05 suggests that the fund has a +ve excess return relative to its level of systematic risk. The Jenson Alpha of 0 indicates that the fund's performance is comparable to the market. The Sortino ratio of -0.59 suggests that the fund has lower downside risk compared to the market. The Information Ratio of 0.05 indicates that the fund has marginally outperformed its benchmark. Lastly, the R-Square of 0.01 suggests that the movements in the market can explain only 1% of the fund's movements.

From this analysis it we get that the UBL Stock Advantage Fund exhibits slightly lower risk-adjusted returns, a positive excess return, performs in line with the market, lower downside risk, marginally outperforms its benchmark, and has a weak correlation with the market.

Table-3h

	HBL Islamic Dedicated Equity Fund	
	Fund	**Market**
Sharpe	**-0.07**	**-0.13**
Treynor	**-0.03**	**-0.01**
Jenson A	**-0.01**	**0**
Sortino	**-0.35**	**-0.05**
Info Ratio	**0**	
R Square	**0.02**	

The HBL Islamic Dedicated Equity Fund has a slightly negative Sharpe ratio of -0.07, indicating lower risk-adjusted returns compared to the market. T ratio of -0.03 suggests that the fund has a negative excess return relative to its systematic risk. The Jenson Alpha of -0.01 indicates that the fund's performance is slightly below the market. The Sortino ratio of -0.35 suggests that the fund has lower downside risk compared to the market. The Information Ratio of 0 suggests that the fund has

performed in line with its benchmark. Lastly, the R-Square of 0.02 suggests that the movements in the market can explain only 2% of the fund's movements.

From this analysis it we get that the HBL Islamic Dedicated Equity Fund exhibits slightly lower risk-adjusted returns, a negative excess return, slightly underperforms the market, lower downside risk, performs in line with its benchmark, and has a weak correlation with the market.

Table-3i

	UBL Dedicated Equity Fund	
	Fund	**Market**
Sharpe	**-0.03**	**-0.13**
Treynor	**0.08**	**-0.01**
Jenson A	**0**	**0**
Sortino	**-0.31**	**-0.09**
Info Ratio	**0.07**	
R Square	**0**	

The UBL Dedicated Equity Fund has a slightly negative Sharpe ratio of -0.03, indicating lower risk-adjusted returns compared to the market. The T ratio of 0.08 suggests that the fund has a +ve excess return relative to its level of systematic risk. The Jenson Alpha of 0 that the fund's performance is comparable to the market. The Sortino ratio of -0.31 suggests that the fund has lower downside risk compared to the market. The Information Ratio of 0.07 shows that the fund has performed slightly healthier than its benchmark. Lastly, the R-Square of 0 suggests that there is no correlation between the movements of the fund and the market.

From this analysis it we get that the UBL Dedicated Equity Fund exhibits slightly lower risk-adjusted returns, a positive excess return, performs in line with the market, lower downside risk, slightly outperforms its benchmark, and has no correlation with the market movements.

Table-3j

	JS Islamic Dedicated Equity Fund

	Fund	Market
Sharpe	**-0.1**	**-0.13**
Treynor	**6.21**	**-0.01**
Jenson A	**-0.01**	**0**
Sortino	**-0.72**	**-0.07**
Info Ratio	**-0.01**	
R Square	**0**	

The JS Islamic Dedicated Equity Fund has a negative Sharpe ratio of -0.1, indicating lower risk-adjusted returns compared to the market. The Treynor ratio of 6.21 suggests that the fund has a significantly higher excess return relative to its level of systematic risk. The Jenson Alpha of -0.01 shows that the fund's performance is a little below the market. The Sortino ratio of -0.72 suggests that the fund has lower downside risk compared to the market. The Information Ratio of -0.01 indicates that the fund has underperformed its benchmark. Lastly, the R-Square of 0 suggests that there is no correlation between the movements of the fund and the market.

From this analysis it we get that the JS Islamic Dedicated Equity Fund exhibits lower risk-adjusted returns, a significantly higher excess return, slightly underperforms the market, lower downside risk, underperforms its benchmark, and has no correlation with the market movements.

Combined Data Analysis of EMMF'S and MMMF's:

Data Analysis of average of 10 Money Market MFs & 10 Equity Market MFs . Then we compare both to reach our results; Here we take average of all of the selected funds of both the categories of MF's to understand that which of the category is performing good or better in Pakistan. To give the insights to the investors of Pakistan that which of the category is performing best in Pakistan according to the last 5 years of trend data.

Money Market Fund's Companies Average Ratios:

Table-4a

	Fund	Market
Sharpe	**-0.35**	**-0.13**
Treynor	**0.42**	**-0.01**
Jenson A	**-0.01**	**0.00**

Sortino	**-7.85**	**-0.12**
Info Ratio	**0.01**	
R Square	**0.01**	

The Sharpe Ratio is a risk-adjusted return metric. Money market MF exhibits an average Sharpe Ratio of -0.35, indicating that the fund's return does not adequately compensate for the level of risk assumed. In comparison, the market has an average Sharpe Ratio of -0.13, implying that the fund's risk-adjusted performance is lower than the broader market.

The Treynor Ratio measures the extra return on systematic risk per unit of return. Money market mutual fund has an average Treynor Ratio of 0.42, meaning that the fund achieves a good risk-adjusted return while taking on a certain amount of systematic risk. Conversely, market exhibits an average Treynor Ratio of -0.01, indicating that it fails to generate an excess return when accounting for systematic risk.

The Jenson Alpha measures the risk-adjusted excess return compared to a benchmark. The money market mutual fund displays an average Jenson Alpha of -0.01, suggesting that the fund underperforms in terms of generating excess returns after adjusting for risk. On the other hand, the market exhibits an average Jenson Alpha of 0.00, indicating performance in line with the benchmark.

The Sortino Ratio assesses risk-adjusted returns, focusing on downside risk. The money market mutual fund shows an average Sortino Ratio of -7.85, indicating a high level of downside risk relative to returns. In comparison, the market has an average Sortino Ratio of -0.12, suggesting a lower level of downside risk.

The Information Ratio assesses a fund's capacity to outperform a benchmark index in terms of returns.. The provided data does not include the average Information Ratio for the market, but the money market mutual fund exhibits an average Information Ratio of 0.01. This indicates that the fund is able to generate a small amount of excess return compared to its benchmark.

The R Square metric represents the proportion of a fund's variability that can be explained by the market. The money market mutual fund has an average R Square of 0.01, implying that only a small percentage of the fund's variability can be related to market fluctuations. This suggests that factors other than the market play a significant role in influencing the fund returns.

From our analysis of average ratios of the money market MFs indicate mixed performance. While the fund shows positive risk-adjusted returns “Treynor Ratio” and a small ability to generate excess returns compared to its benchmark (Information Ratio), it underperforms in terms of risk-adjusted returns (Sharpe Ratio) and exhibits a high level of downside risk (Sortino Ratio). The R Square suggests that market movements have a limited influence on the fund's returns. Further analysis and consideration of additional factors are necessary to make more informed investment decisions.

Equity Market Fund’s Average Ratios:

Table-4b

	Fund	Market
Sharpe	**-0.129**	**-0.13**
Treynor	**0.643**	**-0.01**
Jenson A	**-0.006**	**0**
Sortino	**-1.116**	**-0.178**
Info Ratio	**-0.043**	
R Square	**0.324**	

Equity market mutual fund exhibits an average Sharpe Ratio of -0.129, suggesting that the fund's return does not adequately compensate for the level of risk taken. Comparatively, the market has an average Sharpe Ratio of -0.13, indicating a similar risk-adjusted performance between the fund and the overall market.

The Treynor Ratio measures extra return for every unit of systematic risk. Equity market mutual fund has an average Treynor Ratio of 0.643, indicating that the fund generates a positive risk-adjusted return relative to the level of systematic risk it undertakes. Conversely, the market exhibits an average Treynor Ratio of -0.01, implying a lack of excess return when considering systematic risk.

The Jenson Alpha measures the risk-adjusted excess return compared to a benchmark. The equity market mutual fund displays an average Jenson Alpha of -0.006, indicating slight underperformance in generating excess returns after adjusting for risk. Meanwhile, the market exhibits an average Jenson Alpha of 0, suggesting performance in line with the benchmark.

The Sortino Ratio evaluates risk-adjusted returns, focusing on downside risk. The equity market mutual fund shows an average Sortino Ratio of -1.116, suggesting a relatively higher level of downside risk compared to returns. In comparison, the market has an average Sortino Ratio of -0.178, indicating a relatively lower level of downside risk.

The provided data indicates an average Information Ratio of -0.043 for the equity market mutual fund. From this we reach to a point that the fund tends to underperform its benchmark in generating excess returns.

Equity market mutual fund has an average R Square of 0.324, indicating that a significant portion of its returns can be attributed to market movements. This implies that market factors have a relatively strong influence on the fund's performance.

From these average ratios of the equity market mutual fund we get a mixed performance. The fund demonstrates positive risk-adjusted returns (Treynor Ratio) and a moderate ability to generate excess returns relative to its benchmark. However, it underperforms in terms of risk-adjusted returns (Sharpe Ratio), exhibits higher downside risk (Sortino Ratio), and tends to underperform its benchmark (Information Ratio). The R Square suggests that market movements play a significant role in the fund's returns. Further analysis and consideration of additional factors are crucial in making informed investment decisions based on this data.

Results:

Now we compare the ratios (Sharpe, Treynor, Sortino, and Information) of Equity Market MF and Money Market MF to know which category stands where; here,

From Sharpe Ratio, we got to a point that return of the given fund reveals that both funds underperform, as they possess negative values. Nevertheless, a closer examination reveals that the equity market mutual fund holds a slightly higher Sharpe Ratio (-0.129) compared to the money market mutual fund (-0.35). Both ratios are negative, indicating that both funds have negative risk-adjusted returns.

Treynor Ratio, tells us that the equity market mutual fund (0.643) demonstrates superior risk-adjusted returns compared to the money market mutual fund (0.42). This implies that the equity market mutual fund offers more favorable returns considering the level of systematic risk.

When assessing the Jenson Alpha we got that, both funds exhibit negative values, indicating underperformance relative to the market. However, the equity market mutual fund (-0.006) displays marginally better performance compared to the money market mutual fund (-0.01).

After analyzing the Sortino Ratio we got that, the equity market mutual fund (-1.116) showcases a better ratio in contrast to the money market mutual fund (-7.85). This indicates that the equity market mutual fund manages downside risk more effectively and may provide a more favorable risk-return profile.

Information Ratio, reveals that the money market mutual fund (0.01) displays a slight outperformance, while the equity market mutual fund (-0.043) exhibits underperformance.

Lastly, the R Square metric we got to find, that a higher value for the equity market mutual fund (0.324) compared to the money market mutual fund (0.01). A higher R Square suggests that the equity market mutual fund's returns are more influenced by market movements.

Equity market mutual fund performs relatively better or is more suitable for investors in Pakistan. It shows higher risk-adjusted returns (Treynor Ratio), better management of downside risk (Sortino Ratio), and a stronger influence from market movements (R Square) compared to the money market mutual fund.

After conducting a composite performance analysis of the Equity market MFs and Money market MFs, it can be concluded that the equity market mutual fund generally outperforms the money market mutual fund in various performance metrics, which is quite interesting.

The equity market mutual fund exhibits a higher Sharpe Ratio, indicating a relatively better risk-adjusted return compared to the money market mutual fund. This suggests that the equity market mutual fund has the potential to deliver better returns for a given level of risk.

Additionally, the Treynor Ratio, that favors the equity market mutual fund. It implies that investors may be rewarded with higher returns relative to the systematic risk taken by investing in the equity market mutual fund.

Furthermore, the Sortino Ratio, the analysis or our results suggests that the equity market mutual fund may provide a more favorable risk-return profile, protecting against negative returns during market downturns.

In terms of market correlation, the analysis or our results implies that the performance of the equity market mutual fund is more closely tied to overall market conditions. Investors interested in capitalizing on market trends may find the equity market mutual fund more suitable for their investment goals.

By considering these factors we reach to a point that, the equity market mutual fund appears to be a more preferable option for investment. It demonstrates better risk-adjusted returns, more effective downside risk management, and a stronger correlation with market movements.

Conclusions:

This study has investigated the performance evaluation of MFs in Pakistan for a period ranging from Dec, 31, 2016 to Dec, 31, 2021, Which Collectively Make 5 Years of Data of ten (10) Mutual Funds from two (2) different categories of MFs sector which are Equity Market Mutual Fund & Money Market Mutual Fund Companies. Month ended value of Net Asset Value (NAV) was taken and 3-Month T-Bills Rate was used as Risk free Rate (RFR) and we take KSE 100 Index as a Benchmark. We use composite performance analysis which include, Sharpe Ratio, Treynor's Ratio, Sortino Ratio, Information Ratio, and we also use R-Square and Jenson Alpha.

In conclusion, the comprehensive analysis of the equity market mutual fund and money market mutual fund as shown in **Table: 4(a)&(b)** , from this we reach to a point that the equity market mutual fund generally outperforms the money market mutual fund across various performance metrics. It exhibits a higher Sharpe Ratio, showing better risk-adjusted returns, and a higher Treynor's Ratio, suggesting superior risk-adjusted returns relative to systematic risk. The equity market mutual fund also manages downside risk more effectively, as indicated by the higher Sortino Ratio, and shows a stronger correlation with market movements, as indicated by the higher R Square.

These findings gives us answer that the equity market mutual fund has the potential to deliver better returns for a given level of risk and may provide a more favourable risk-return profile, particularly during market downturns. Investors interested in capitalizing on market trends and seeking higher risk-adjusted returns may find the equity market mutual fund more suitable for their investment goals.

Based on this analysis, the equity market mutual fund appears to be a more preferable option for investment, demonstrating better risk-adjusted returns, effective downside risk management, and a stronger correlation with market movements.

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